IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

DANIEL ANDERSEN, *Plaintiff,* v. THE CITY OF CHICAGO, *et al.*, *Defendants.*	)	No. 16 C 1963 Judge Virginia M. Kendall

MEMORANDUM OPINION AND ORDER

Plaintiff Daniel Andersen was convicted of the murder and attempted rape of Cathy Trunko and spent over twenty-five years in prison. In 2015, Andersen's conviction was reversed, and he received a Certificate of Innocence. Andersen proceeded to sue the City of Chicago and various members of Chicago law enforcement involved in the case. (Dkt. 1). Andersen alleges violations of his constitutional rights, pursuant to 42. U.S.C. § 1983, and several state-law claims.

The Court assumes familiarity with the facts of this case, as the Court recently provided a detailed background in *Andersen v. City of Chicago*, No. 16 C 1963, 2019 WL 6327226 (N.D. Ill. Nov. 26, 2019). In summary, in January 1980, Trunko died after being stabbed. A few days after her death, Chicago Police recovered a knife near the scene that they believed to be the murder weapon. In the week following Trunko's death, Andersen was arrested on a disorderly conduct charge and was questioned about Trunko. Andersen eventually confessed to killing Trunko—a confession that

he says was coerced. Andersen proceeded to a jury trial, where he was convicted of the murder and attempted rape of Trunko. Andersen remained in custody from the time of his arrest in 1980 through trial, and up until his release from prison in April 2007. In August 2015, Andersen's conviction was reversed, and in December 2015, he was granted a Certificate of Innocence by the Circuit Court of Cook County.

Andersen has moved to exclude the proposed testimony of Dan Krane, one of Defendants' DNA experts. (Dkt. 392). The Court held a hearing on the motion on December 12, 2019. (Dkt. 444). For the following reasons, the motion is granted. Andersen also moved post-hearing to exclude previously undisclosed opinions Dr. Krane offered at the hearing. (Dkt. 449). That motion is moot as Dr. Krane's testimony will be excluded.

LEGAL STANDARD

"The admissibility of expert testimony is governed by Federal Rule of Evidence 702 and the Supreme Court's opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)." *Lewis v. CITGO Petroleum Corp.*, 561 F.3d 698, 705 (7th Cir. 2009). Trial judges act as gatekeepers to screen expert evidence for relevance and reliability. *Daubert*, 509 U.S. at 589; *see also C.W. ex rel. Wood v. Textron, Inc.*, 807 F.3d 827, 834 (7th Cir. 2015). Under Rule 702, a "witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion" if the following conditions are satisfied:

> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
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> (b) the testimony is based on sufficient facts or data;

> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. In other words, "the key to the gate is not the ultimate correctness of the expert's conclusions. . . , it is the soundness and care with which the expert arrived at her opinion." *Schultz v. Akzo Nobel Paints, LLC*, 721 F.3d 426, 431 (7th Cir. 2013). In evaluating the expert's proposed testimony, the Court should "scrutinize proposed expert witness testimony to determine if it has the same level of intellectual rigor that characterizes the practice of an expert in the relevant field so as to be deemed reliable enough to present to a jury." *Lapsley v. Xtek, Inc.*, 689 F.3d 802, 805 (7th Cir. 2012) (internal quotation marks omitted).

The Court utilizes a three-part analysis when applying the *Daubert* framework to proposed Rule 702 evidence. The Court determines (1) "whether the witness is qualified"; (2) "whether the expert's methodology is scientifically reliable"; and (3) "whether the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue." *Myers v. Illinois Cent. R. Co.*, 629 F.3d 639, 644 (7th Cir. 2010) (internal quotation marks omitted); *see also Gopalratnam v. Hewlett-Packard Co.*, 877 F.3d 771, 779 (7th Cir. 2017). The expert's proponent bears the burden of demonstrating that the testimony would satisfy the *Daubert* standard by a preponderance of the evidence. *See Gopalratnam*, 877 F.3d at 782; *see also* Fed. R. Evid. 702 advisory committee's note to 2000 amendment.

DISCUSSION

Dr. Krane was retained by Defendants to review and interpret the DNA testing results at issue in this case. Andersen's DNA experts concluded that Andersen and/or Trunko were excluded as contributors of DNA to certain samples taken from the knife and Trunko's fingernail clippings. (*See* Dkt. 655 at 4–5 (discussing the specific conclusions of Andersen's DNA experts)). Dr. Krane, however, rebuts those conclusions. He opines that:

> The DNA profiling test results associated with the knife samples and for the minor contributor to the fingernail samples in this case should all be considered "inconclusive." We cannot attach a reliable statistical weight to any conclusions regarding who is included and who is excluded as a possible contributor to the knife samples or the minor contributor to the fingernail samples. The conditions under which the knife was stored and handled, the possibility of multiple contributors and degradation, and the small quantities of DNA available for testing are issues that independently and cumulatively support the test results from these samples being deemed "inconclusive" in regard to whose DNA may or may not have been associated with them at the time that they were collected as part of an investigation into the murder of Cathy Trunko.

(Dkt. 394-2 at 24). Andersen moved to bar Dr. Krane's opinions because they are not based on a proper scientific methodology and would mislead the jury.

Andersen does not challenge Dr. Krane's qualifications to testify as an expert in DNA analysis. Dr. Krane received degrees in the field of biology and chemistry. (Dkt. 408-2). He is a professor in the Department of Biological Sciences at Wright State University, where he has worked for decades. (Dkt. 408-2). He also is the CEO, President, and Senior Analyst at Forensic Bioinformatics, through which he has done work in forensic DNA interpretation. (Dkt. 408-2; Dkt. 444 at 65:13–66:3). He has published extensively, including many articles on DNA testing. (Dkt. 408-2). He has

also given multiple presentations in the field. (Dkt. 408-2). The Court finds him qualified to offer testimony as a DNA expert.

Dr. Krane's opinions, however, falter at other steps in the *Daubert* inquiry. The Court first addresses Dr. Krane's opinions on partial profiles. Dr. Krane states that "there is no generally accepted means of attaching a reliable statistical weight to a mixed DNA sample with an unknown number of contributors where allelic drop-out may have occurred." (Dkt. 444 at 14). He opines that a partial profile, which has evidence of stochastic effects, "should not be used to exclude or include anyone as a contributor." (Dkt. 408 at 7). Because the DNA profiles Cellmark derived from the samples taken from the evidence resulted in partial profiles, they should be deemed "inconclusive" and none should be used to either include or exclude Andersen or Trunko. Rather than discussing specific errors or specific differences in how a given profile should be interpreted, Dr. Krane, in his report, merely applied his categorical approach to each profile and stated that because it *could* be a mixture of more contributors than posited, it should be deemed inconclusive. (Dkt. 394-2 at 6–12).

The problem is that Dr. Krane's opinion is in stark contrast to what is being done in the field of forensic DNA testing. As discussed in the Court's opinion regarding Andersen's DNA experts, accredited labs, including Cellmark, interpret partial profiles and draw conclusions from them. (*See* Dkt. 655 at 11–15). As Andersen's expert, Dr. Reich, stated, "every forensic DNA laboratory constantly encounters and then interprets, partial profiles." (Dkt. 386-54 at 4). There is no reason to doubt this statement, and in fact, Dr. Krane admitted that he is not aware

of any lab that subscribes to his "blanket" approach to decline to interpret a partial profile. (Dkt. 444 at 91:20–92:5). Additionally, the 2017 Interpretation Guidelines published by the Scientific Working Group on DNA Analysis Methods ("SWGDAM"), which is "a group of scientists representing federal, state, and local forensic DNA laboratories in the United States and Canada," anticipate that laboratories will analyze partial profiles. (Dkt. 415-16 at 2, 38).

Dr. Krane and Defendants point to sources that they say support his position. They point to no source, however, that goes so far as to reach the definitive position that Dr. Krane espouses. Instead, these sources point generally to the uncertainty and risk surrounding the interpretation of partial profiles with an unknown number of contributors. (*See* Dkt. 408 at 13–14 (citing sources regarding uncertainty in interpreting partial profiles)). While these sources might, at a base level, be consistent with Dr. Krane's position, that risk exists or caution should be used does not necessitate declining to interpret the data altogether, as Dr. Krane has done.[1] *See Fuesting v. Zimmer, Inc.*, 421 F.3d 528, 536 (7th Cir. 2005), opinion vacated in part on reh'g, 448 F.3d 936 (7th Cir. 2006) (noting that an "indicator of unreliability is the unjustifiable extrapolation from an accepted premise to an unfounded conclusion"); *see also* Fed. R. Evid. 702 advisory committee's note to 2000 amendment. Further, the cited sources appear to express concerns with the use of partial profiles

[1] Defendants argue that Cellmark's own Standard Operating Procedures ("SOPs") support Dr. Krane's conclusion. That is an overstatement. While the SOPs allow for an inconclusive determination under certain circumstances, they do not call for an inconclusive determination in every situation Dr. Krane suggests. (*See* Dkt. 408-5 at 4).

for purposes of *including* a potential suspect, rather than *excluding* a suspect. *See, e.g.*, President's Council of Advisors on Science and Technology, *Report To The President, Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feat ure-Comparison Methods* (2016) at 7–8, https://obamawhitehouse.archives.gov/sites/ default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf; Frederi ck R. Bieber, *et al.*, *Evaluation of forensic DNA mixture evidence: protocol for evaluation, interpretation, and statistical calculations using the combined probability of inclusion*, BMC Genetics 17, 125 (2016), *available at* https://bmcgenet.biomedcent ral.com/track/pdf/10.1186/s12863-016-0429-7; John M. Butler, *Low Template DNA Challenges and Validation Suggestions*, DNA Mixture Interpretation Webcast April 12, 2013 at 13–14, *available at* https://strbase.nist.gov/training/MixtureWebcast/9_L owTemplateValidation-Butler.pdf). Here, Cellmark's conclusions pertained to exclusions. With the exception of Trunko's DNA being consistent with that found on her own fingernails (which Dr. Krane declined to agree or disagree with (Dkt. 394-2 at 11)), Cellmark either excluded Trunko and/or Andersen as contributors to the samples or found that no conclusions could be reached. That here we are dealing with exclusions rather than inclusions makes a big difference in whether Dr. Krane's testimony is admissible.[2]

[2] Dr. Krane's comments on statistical calculations are also made irrelevant by the fact that here we are dealing with exclusions. If the individual is excluded as a contributor, the probability of exclusion is an immaterial calculation. Dr. Reich, in rebuttal to Dr. Krane's opinions, succinctly describes this, and the Court repeats his description here:

> There are of course several well characterized and well accepted statistical methods for calculating the strength of an association in a forensic DNA case, *i.e.*, how strong is

As a general matter, it is the Court's role to determine whether the methods used by an expert in reaching a conclusion are sound, not to judge whether the conclusion is correct. *Schultz*, 721 F.3d at 431; *see also Smith v. Ford Motor Co.*, 215 F.3d 713, 719 (7th Cir. 2000) ("It is not the trial court's role to decide whether an expert's opinion is correct."). Here, however, the method and the conclusion are inextricably linked. The method is to decline to interpret a partial profile to include or exclude anyone. The result, therefore, is of course to determine that the DNA profile is inconclusive as to Andersen and Trunko. Because the method is not sound, the conclusion is not admissible.[3]

> the claimed or purported identification of an individual, derived from comparing the questioned DNA profile with a known reference standard DNA profile. . . .
>
> There are, however, no statistical approaches to determining the weight of an exclusion, *i.e.*, when an individual is not present on a questioned sample. Technically the probability of identifying the excluded individual is zero (0) as he or she is not present on the sample.
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> No forensic laboratory calculates the statistic Professor Krane professes to request, *i.e*, the probability of an exclusion or the probability of an inclusion. There are no laboratory standards, methods or procedures to perform the analysis Professor Krane invents and little or no theoretical foundation for attempting to compute such a number.
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> Once a contributor has been excluded, no further analysis of that individual's DNA can be made — his or her DNA profile is not present and thus no frequency tables, mathematical formulae or likelihood calculations are relevant to that individual. He or she is excluded — no further arguments in relation to probability are possible, relevant or logical.

(Dkt. 386-54 at 3–4). As such, Dr. Krane's discussion of the topic would not aid the jury in "understand[ing] the evidence" or "determin[ing] a fact in issue." *Myers*, 629 F.3d at 644 (internal quotation marks omitted)

[3] Subsumed in Dr. Krane's conclusion is the proposition that low template DNA can lead to stochastic effects, which in turn can produce unreliable results. Accepting this proposition as true, it does not alter the Court's conclusion. As noted above, partial profiles, which have evidence of stochastic effects, are regularly and reliably interpreted.

In sum, Dr. Krane's blanket methodology is unsupported by his cited sources and is not generally accepted within his field. The Court appreciates that these factors are just some to be considered in the reliability inquiry. *See United States v. Truitt*, 938 F.3d 885, 890 (7th Cir. 2019) ("*Daubert* identifies a number of factors a court might consider, including whether the methods have been tested or subjected to peer review and whether they are generally accepted in the field."); *Bielskis v. Louisville Ladder, Inc.*, 663 F.3d 887, 894 (7th Cir. 2011) (noting that publication of a theory and its acceptance within the relevant community are factors to be considered under *Daubert*). But these factors weigh against the reliability of Dr. Krane's testimony, and the Court sees no other factors that weigh in support of its reliability. It may be, as Dr. Krane suggests, that he is at the forefront of a position that will one day become widely held. Today, however, is not that day, at least not for the purposes of *Daubert* and Rule 702.[4] The Court concludes that Dr. Krane's opinion that the partial profiles derived in this case should be deemed inconclusive does not meet the requirements for reliability and must be excluded.

Although Dr. Krane's conclusions are inadmissible, as noted above, some of the underlying propositions he relies on are generally accepted and have been published widely, specifically that interpretation of partial profiles with an unknown number of

[4] Dr. Krane stated at the hearing that the newer concept of probabilistic genotyping could allow for more reliable interpretation of partial profiles. Dr. Krane, however, did not discuss probabilistic genotyping in his expert report. *See Ciomber v. Coop. Plus, Inc.*, 527 F.3d 635, 642 (7th Cir. 2008) (stating that "Rule 26(a)(2) mandates a complete and detailed report of the expert witness's opinions, conclusions, and the basis and reasons for them"). More importantly, discussion of probabilistic genotyping would very likely confuse the jury, outweighing any probative value—probabilistic genotyping was not used in this case and to get into what it is and why it could be used goes down a rabbit hole that is unnecessary. Fed. R. Evid. 403.

contributors can present risk and uncertainty. It is this Court's understanding, however, that the caution advised has to do with making inclusions, although the parties did not address this rather crucial point. Here, as noted, we are dealing with exclusions. Therefore, to allow discussion of the uncertainty in the area would be prejudicial. A jury may become confused and extrapolate the uncertainty to exclusions even though unwarranted. Discussion of the uncertainty, therefore, would be more prejudicial than probative, even if it is reliable and relevant. Fed. R. Evid. 403. That being said, if Defendants believe that there is some way in which Dr. Krane's testimony on this more general topic of uncertainty could be admissible in a manner that is consistent with this Opinion, they may explain in a supplemental brief why the Court should admit Dr. Krane's opinions on a limited basis. Any supplemental brief, if there are grounds to support it, must be 15 pages or less and submitted within 14 days of the filing of this Opinion.

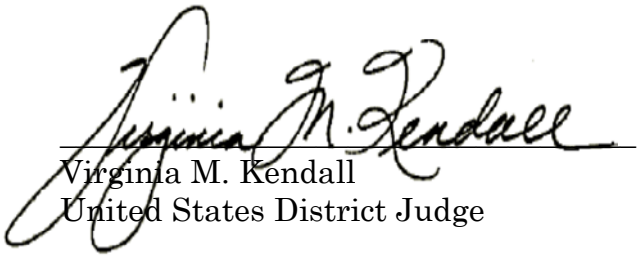
The Court turns next to additional opinions Dr. Krane offered regarding contamination and degradation. Dr. Krane will not be permitted to discuss these topics. That would be cumulative to the testimony of Dr. Warren, whose testimony on the topic was far more thorough. *See* Fed. R. Evid. 403 ("The court may exclude relevant evidence if its probative value is substantially outweighed by a danger of. . . needlessly presenting cumulative evidence."); *see also* L.R. 16.1, Final Pretrial Order Form n. 7 ("Only one expert witness on each subject for each party will be permitted to testify absent good cause shown."). Dr. Krane's explanation of the risk of

contamination is duplicative of Dr. Warren's testimony. (*Compare, e.g.,* Dkt. 393-1 at 7 with 394-2 at 18 (both citing the same source regarding contamination)).

Further, at the hearing, Dr. Krane admitted that he had not reviewed much of the relevant testimony in this case about how the evidence was handled and was relying in part on his general knowledge of DNA collection practices in drawing his conclusion. (*See* Dkt. 394-2 at 2–3 (discussing the sources he reviewed); Dkt. 444 at 133:12–134:18)). But this is not an appropriate basis upon which he may rely, as Dr. Krane has been qualified as a DNA expert, not an expert in the standards for evidence collection pre-DNA testing. *See* Fed. R. Evid. 702 advisory committee's note to 2000 amendment ("If the witness is relying solely or primarily on experience, then the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts."). In addition to being needlessly cumulative, this is another reason to exclude his testimony on the subject.

CONCLUSION

For the foregoing reasons, Andersen's motion to exclude the testimony of Dr. Krane is granted. (Dkt. 392). Andersen's motion to exclude Dr. Krane's undisclosed opinions is dismissed as moot. (Dkt. 449). Defendants are granted leave to file a limited supplemental brief, consistent with this Opinion, within 14 days of the filing of this Opinion.



Virginia M. Kendall
United States District Judge

Date: June 16, 2020